

Allied Landfill Superfund Site

Feasibility Study Addendum

Kalamazoo, Michigan

June 24, 2015

Agenda

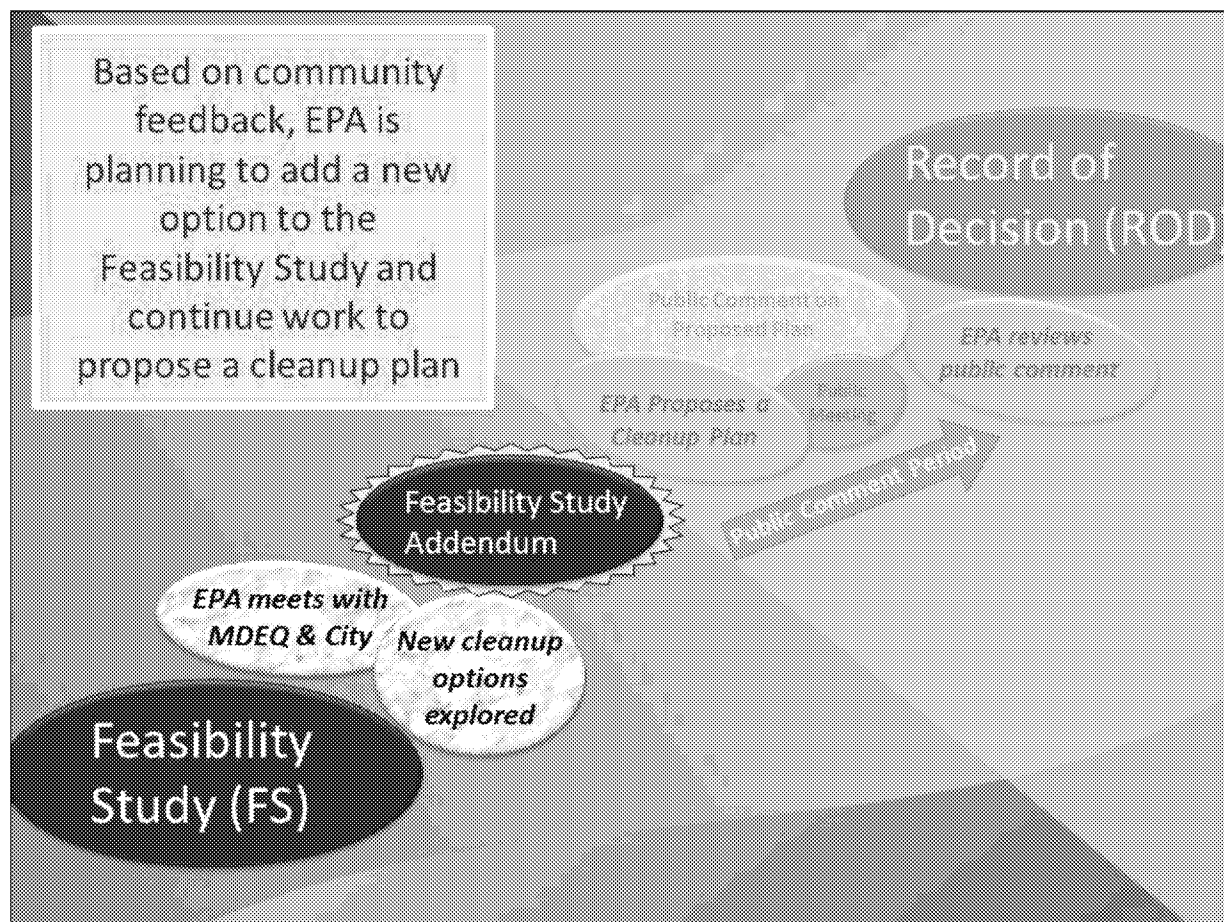


- Feasibility Study Addendum
 - Redevelopment/Reuse Potential of new alternative
 - Updated Costs
- Groundwater Report
- Next Steps



Feasibility Study Addendum

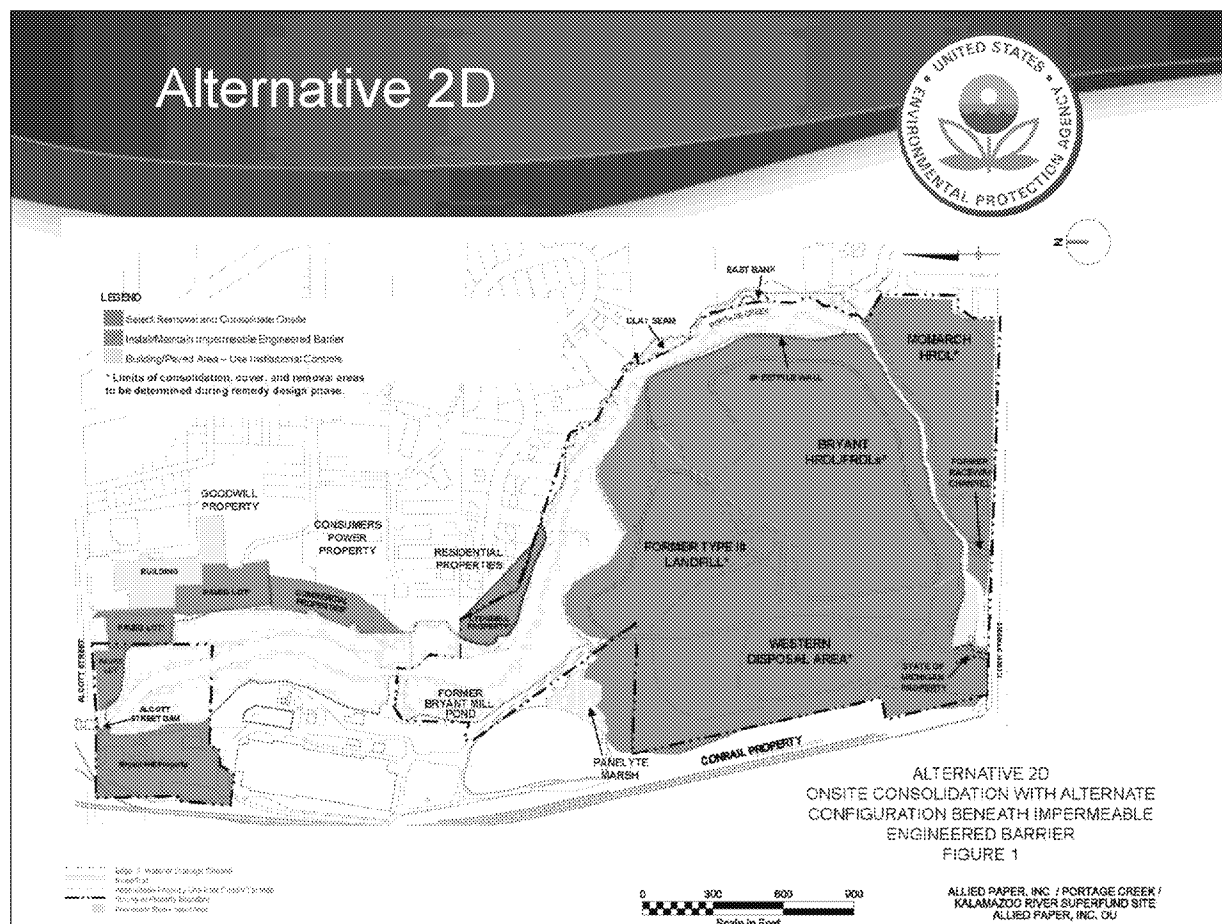
U.S. Environmental Protection Agency



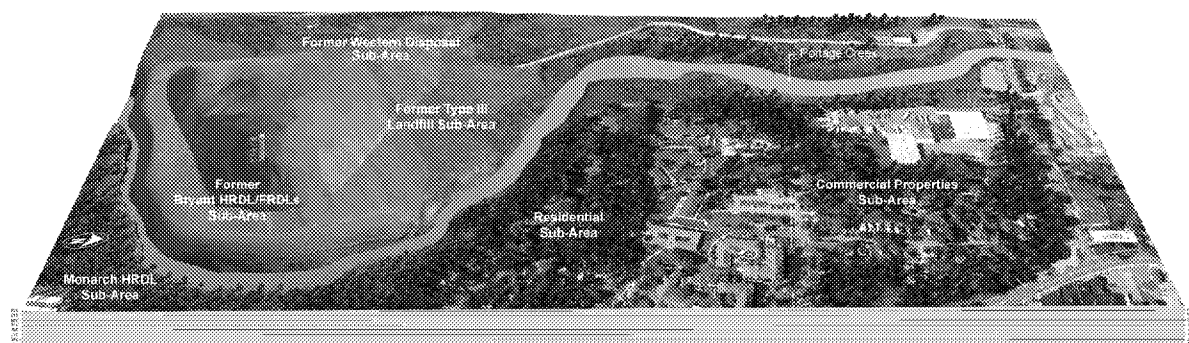
Guiding Principles



- Protectiveness
- Productivity
- Accessibility
- Connectedness



3-D Representation of Alternative 2D



Cost Summary



Summary of Remedial Alternative Costs

OU1 Feasibility Study Report—Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site

Alternative	Estimated Capital Cost	Estimated O&M Cost	Estimated Periodic Cost	Total Present-worth Cost
Alternative 1	\$0	\$0	\$110,000	\$110,000
Alternative 2A	\$38,000,000	\$6,700,000	\$110,000	\$44,000,000
Alternative 2B	\$38,000,000	\$5,000,000	\$110,000	\$43,000,000
Alternative 2C	\$65,000,000	\$5,000,000	\$110,000	\$70,000,000
Alternative 2D	\$57,000,000	\$5,800,000	\$110,000	\$63,000,000
Alternative 3	\$238,000,000	\$0	\$110,000	\$238,000,000
Alternative 4	\$154,000,000	\$5,000,000	\$110,000	\$159,000,000

Elevation Zones

Elevation Zones

Floodzone

- Elevations: 780-794 Feet
- Limitations: 100-year Flood Zone
- Access: Trail, greenway, boating

Intermediate Zone

- Elevations: 795 - 809 Feet
- Limitations: Commercial, industrial or recreational uses.
- Access: vehicle, potential rail access.

Highland Zone

- Elevations: 810-866 Feet
- Limitations: Elevated capped area with side slopes; development limitations, cap maintenance requirements.
- Access: Potential pedestrian and recreational access.

Other Features

Topography

+ 800' Spot Elevations (feet above sea level)

Parcels

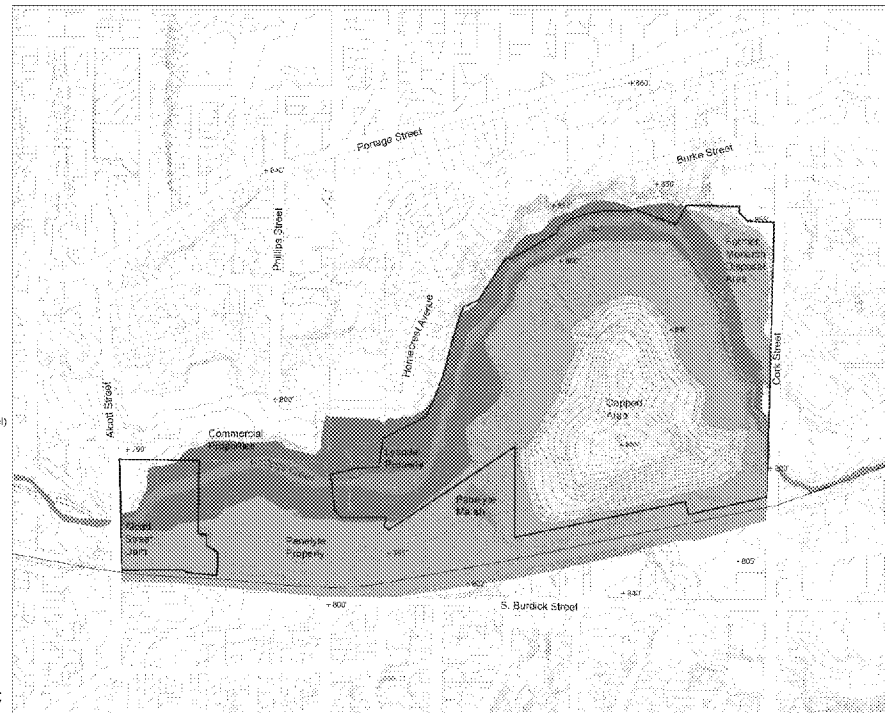
Surface Water

Allied Landfill Site Areas

Rail Line

Note: This map is for planning purposes only; all locations and boundaries are approximate.

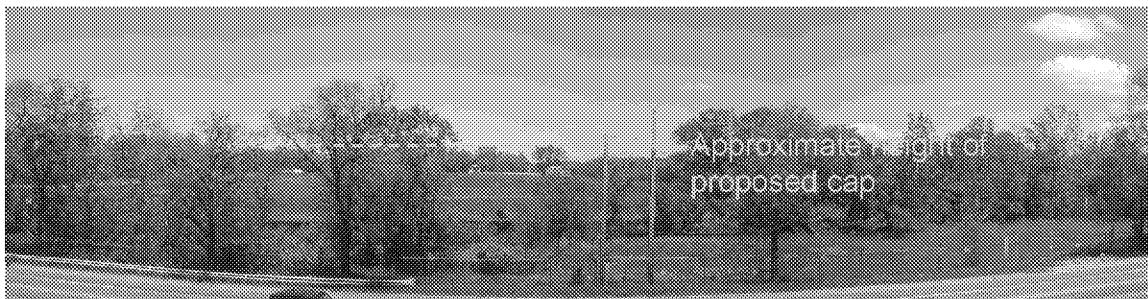
0 500 1,000 Feet



Current View from Cork Street

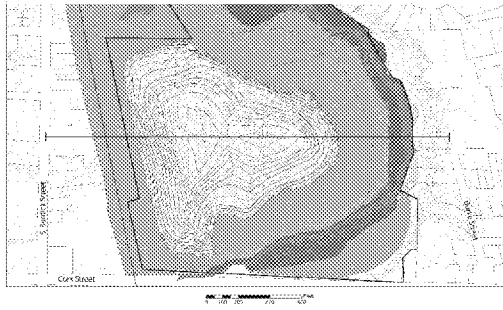


February 2015



April 2009

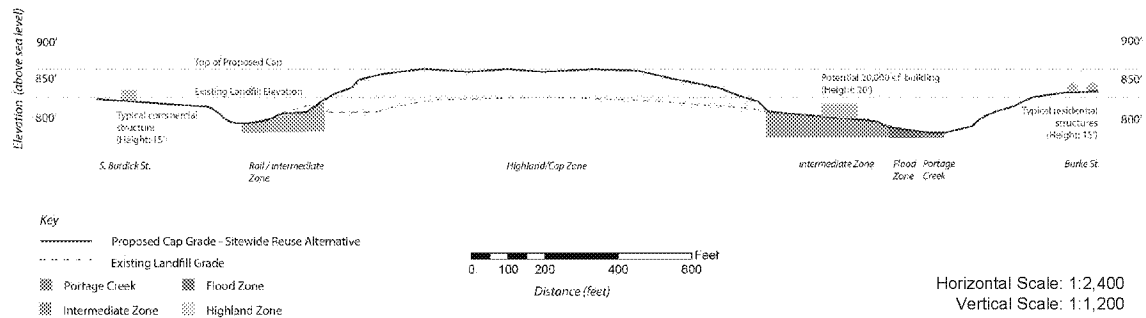
Site Profile



Section Diagram

S. Burdick St. to Burke St.

- Proposed cap anticipated at 41' above existing landfill elevation.
- Diagram below shows elevation twice the height relative to distance.



Access and Connections

Access and Connections

- Existing Access Point
- Potential Access Point
- Arterial Street
- Bus Route
- Potential Trail
- Potential Road
- Potential Bridge Location

Topography and Elevation Zones

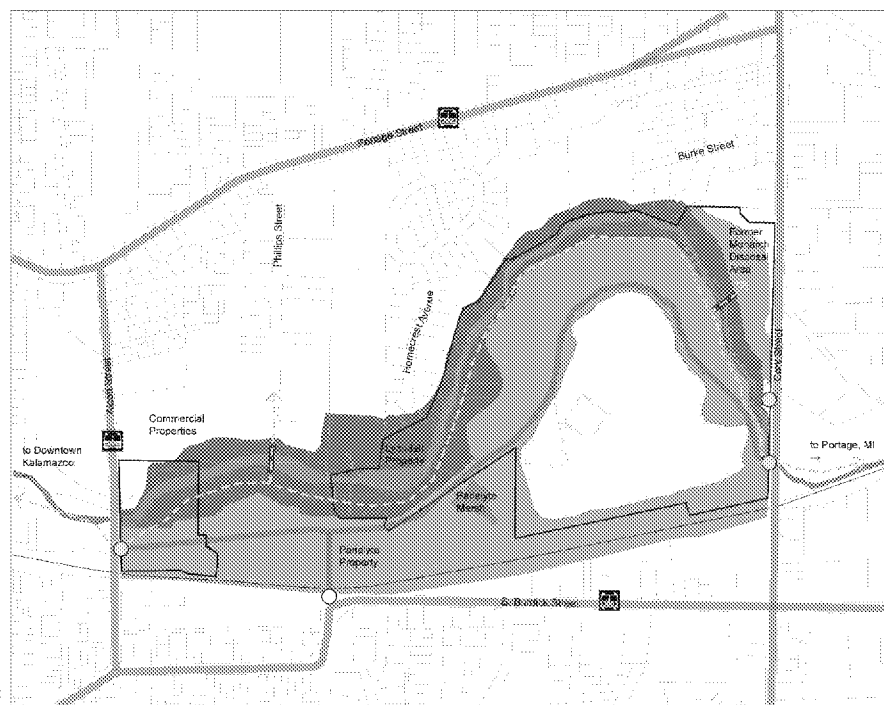
- Flood Zone
- Intermediate Zone
- Highland Zone

Other Features

- Parcels
- Surface Water
- Allied Landfill Site Areas
- Rail Line

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0 500 1,000 Feet



Reuse Zones

Reuse Zones

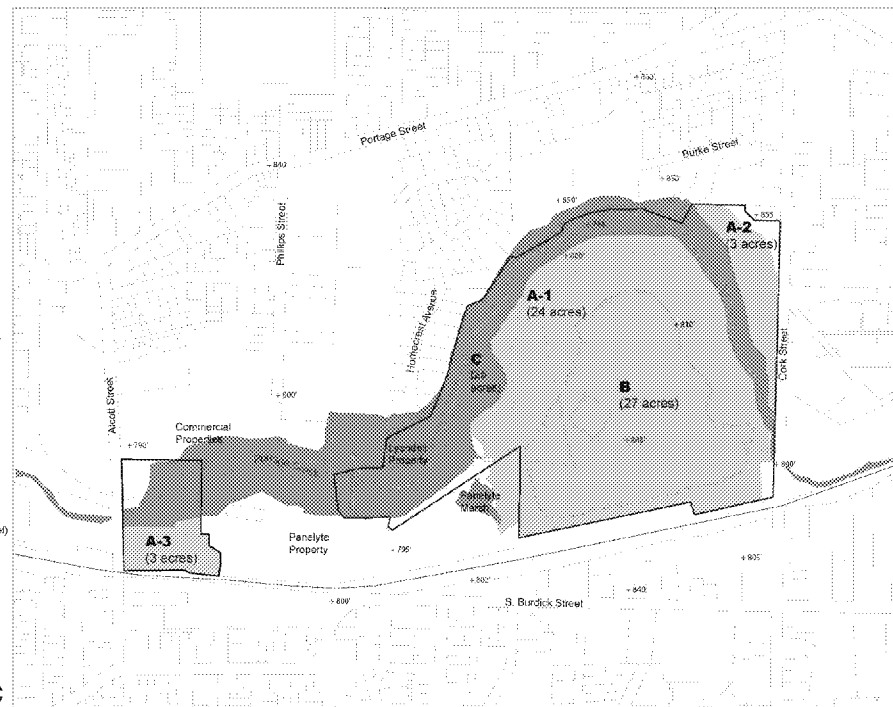
- A Commercial/Industrial/Recreational (30 acres total)**
- Few limitations
 - Contaminant excavation
 - Backfilled and re-graded
 - Institutional controls limit future use to commercial/industrial or recreational uses.
- B Recreation/Open Space (27 acres)**
- Remedial Considerations
 - Consolidation and capping
 - Sloped areas and elevated grade (41 feet above existing grade)
 - Institutional controls prevent disturbance of cap and remedial features.
- C Portage Creek Greenway (25 acres including creek channel)**
- Flood zone limitations
 - Portage Creek 100-Year Flood Plain
 - Previously remediated areas (Bryant Mill Pond Removal Action)
 - Institutional controls limit future use to recreation/open space

Other Features

- Rail Line
- Topography
- Spot Elevations (feet above sea level)
- Parcels
- Surface Water
- Allied Landfill Site Areas

Note: This map is for planning purposes only; all locations and boundaries are approximate.

0 500 1,000 Feet



Reuse Suitability

Potentially Suitable Uses

- A Commercial/Industrial/Recreational (30 acres total)**
- Commercial office/R&D
 - Alternative energy generation (solar, wind)
 - Commercial retail
 - Indoor recreation facility
 - Skate park
 - Playground
 - Climbing wall
 - Trail along rail line (ADA-accessible)

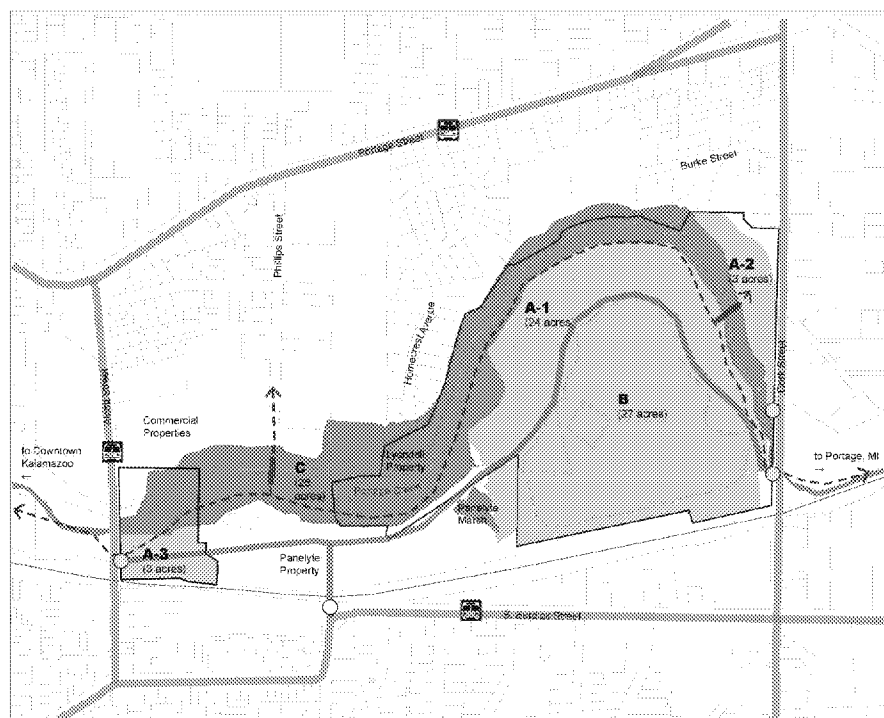
- B Recreation/Open Space (27 acres)**
- Scenic look out and hiking trail
 - Mountain bike park
 - Luge run
 - Zip Line
 - Alternative energy generation (methane gas capture)

- C Portage Creek Greenway (25 acres including creek channel)**
- Multi-use greenway trail (ADA-accessible)
 - Educational exhibits on the history of paper industry and site cleanup
 - Environmental education and stewardship programming

Other Features

- Existing Access Point
- Potential Access Point
- Arterial Street
- Bus Route
- Potential Trail
- Potential Road
- Potential Bridge Location
- Parcels
- Surface Water
- Allied Landfill Site Areas

0 500 1,000 Feet



Reuse Suitability Considerations

Zone	Size	Limitations	Elevation	Access	Potentially Suitable Uses
A. Commercial/Industrial/Recreational	30 acres total	Few Limitations	Intermediate Zone	Vehicular (with bus route access), rail, pedestrian	<ul style="list-style-type: none"> - Hockey/skating rink - Skateboard park - Climbing wall - Playground - Commercial-Office/R&D/Retail - Renewable energy
B. Recreation/Open Space	27 acres	Remedial Limitations	Highland Zone	Pedestrian, bicycle	<ul style="list-style-type: none"> - Scenic look-out - Hiking trail - Mountain bike park - Luge run - Zip line - Renewable energy
C. Portage Creek Greenway	25 acres	Flood Zone Limitations	Flood Zone	Pedestrian, bicycle, canoe/kayak	<ul style="list-style-type: none"> - ADA-accessible greenway trail - Educational exhibits, stewardship programming

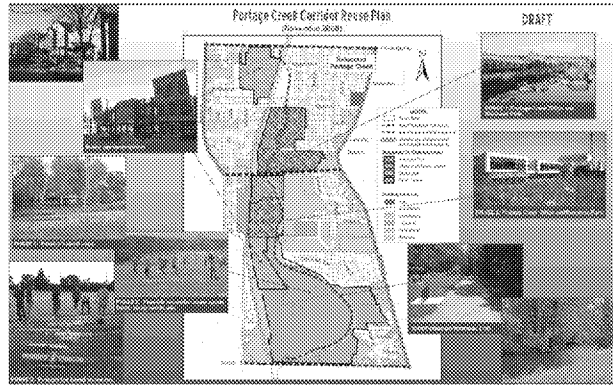
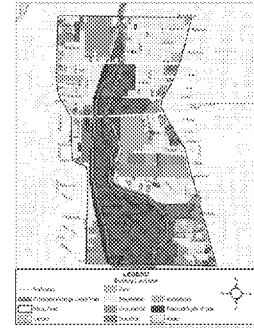
Increase Economic Development Potential

The sitewide reuse alternative:

- Increases economic development potential for the Portage Creek corridor by adding an additional 30 acres for commercial reuse (Zone A).
- Offers potential to compliment existing nearby commercial retail.
- Creates opportunities to leverage emerging clusters in medicine, pharmaceuticals and food systems.



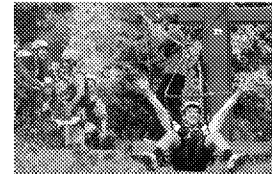
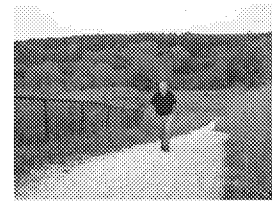
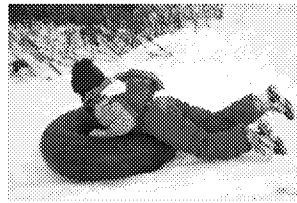
Existing commercial retail on Cork St. (above); Surrounding Land Use Map (right); Portage Creek Corridor Reuse Plan (below)



Increase Recreation and Open Space

The proposed sitewide reuse alternative:

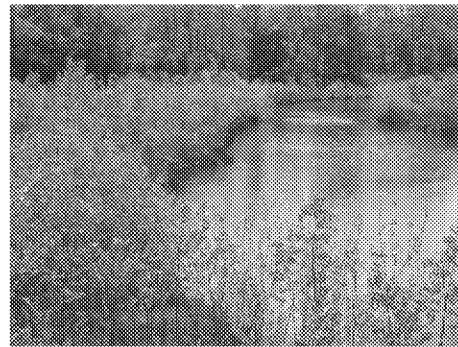
- Increases access to recreation and open space by adding an additional 27 acres of open space (Zone B).
- Potential to accommodate a range of active recreational uses that take advantage of accessible steeper terrain.
- Examples include: sledding hill, gravel walking trails, zipline, playground and skatepark.



Increase Greenway Trail Access

The proposed sitewide reuse alternative:

- Increases recreational trail access along the Portage Creek Corridor by adding approximately 6,000 feet of linear greenway (Zone C).
- Accommodates multi-use, accessible trail system with regional connections to Downtown Kalamazoo and Portage.
- Provides opportunity for creek access, educational exhibits and stewardship programming.





Groundwater Study

U.S. Environmental Protection Agency

Groundwater



- 2014 Sampling Event
 - 32 Samples
 - 7 Additional Wells
- Conceptual Site Model
 - Portage Creek Influences Shallow Groundwater
 - Upward Gradient

GW as a main issue for pause

MDEQ felt important to refresh

MDEQ asked EPA to collect groundwater samples

CSM – Where is it going? What is in it?

Groundwater flows to portage creek. Does not flow toward city well field

PCBs all but non-detect in wells ringing the waste

Groundwater



Report Conclusion:

- PCBs are not migrating off-site from Allied Landfill.
- A migration pathway beneath the central waste mass at Allied Landfill and the downgradient City municipal wellfields screened in the deeper regional aquifer is not currently apparent.

GW as a main issue for pause

MDEQ felt important to refresh

MDEQ asked EPA to collect groundwater samples

CSM – Where is it going? What is in it?

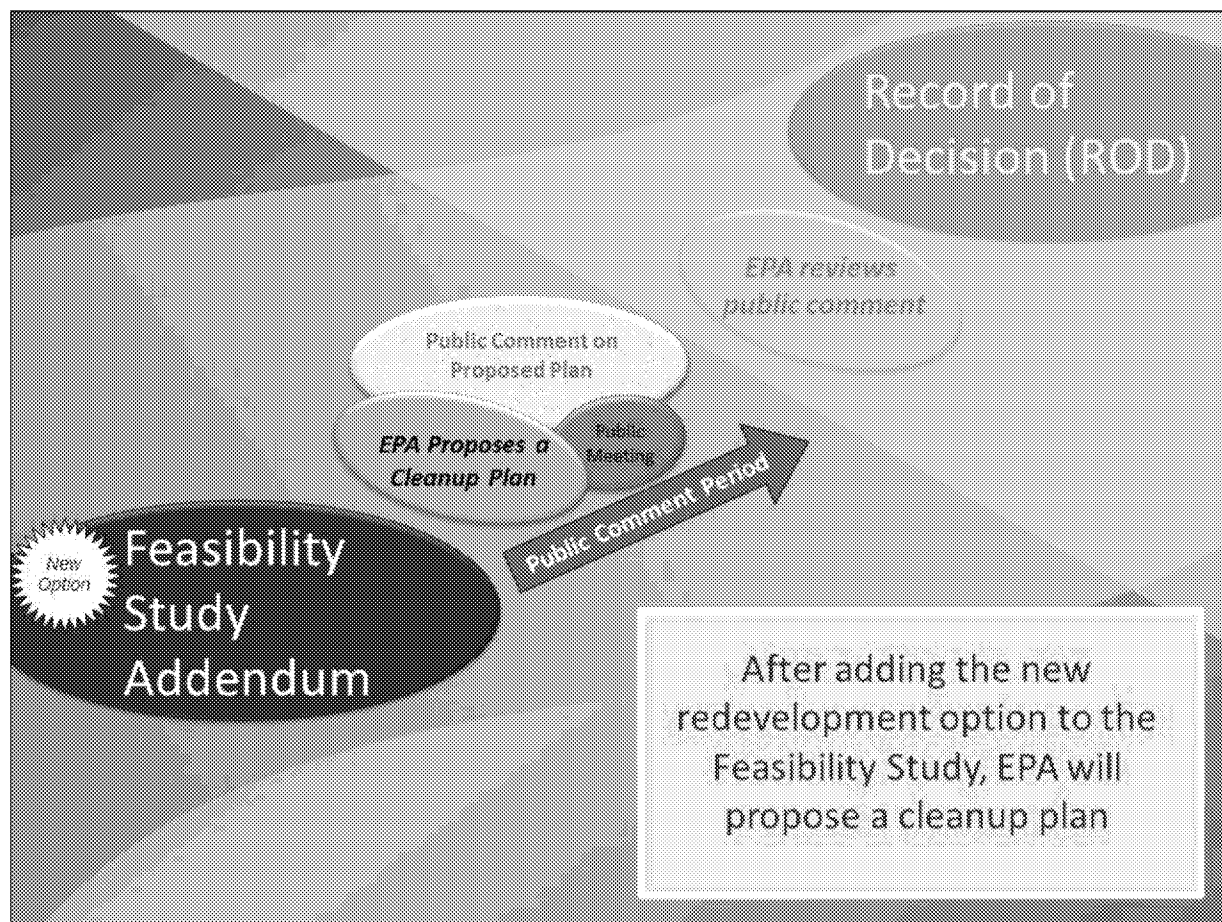
Groundwater flows to portage creek. Does not flow toward city well field

PCBs all but non-detect in wells ringing the waste



Next Steps

U.S. Environmental Protection Agency



Next Steps (from April Meeting)



- Public Feedback ✓
 - Collected by City of Kalamazoo
- Publish Groundwater Report ✓
- Add New Alternative to Feasibility Study
 - Poster Session/Presentation (*today*)
- EPA Issue Proposed Plan (*expected Summer 2015*)
- EPA Selects Remedy (Record of Decision) (*Late 2015?*)

Continue to work with City on gw report.

Publish to website

Received feedback collected by city

New alternative in development

Availability Session to show it in detail and how it might incorporate citizen ideas collected by city



Questions?

U.S. Environmental Protection Agency



Flow goes to Portage Creek

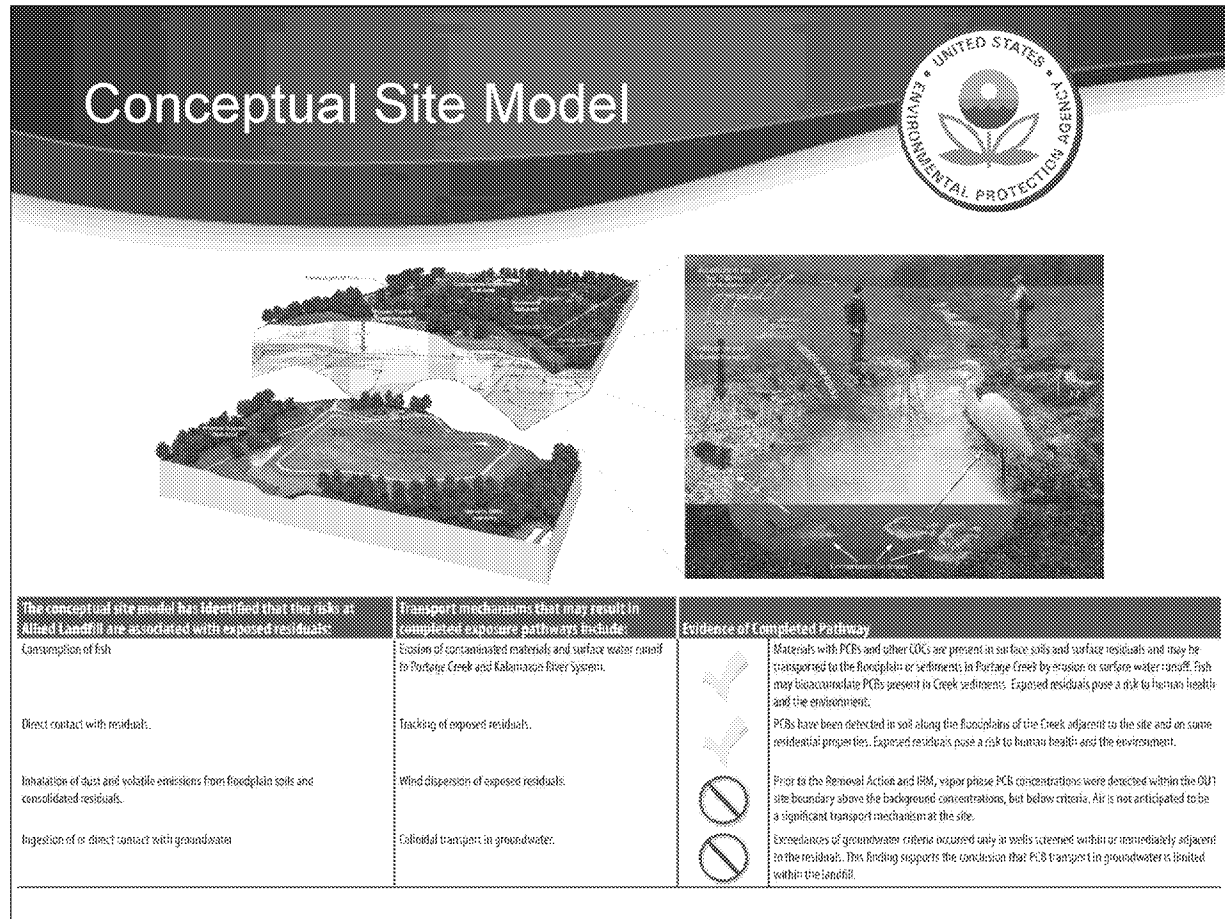
Distribution of PCBs in soil

PCBs frozen in waste.

Immobile.

If PCBs were mobile within the waste, we would see gradients

Further evidence that PCBs are not migrating to groundwater



The site risks are:

Migration of PCBs via erosion to Portage which could lead to fish uptake and then to anglers

Direct contact to and ingestion of exposed residuals

The cleanup alternatives need to prevent direct contact, prevent erosion

Remedial Action Objectives



RAOs are goals for protecting human health and the environment.

- **RAO 1** – Mitigate the potential for human and ecological exposure to materials at OU1 containing COC concentrations that exceed applicable risk-based cleanup criteria.
- **RAO 2** – Mitigate the potential for COC-containing materials to migrate, by erosion or surface water runoff, into Portage Creek or onto adjacent properties.
- **RAO 3** – Prevent contaminated waste material at the

Groundwater no

Surface water via erosion yes.

Prevent direct contact

Prevent erosion and migration

NCP Threshold Criteria



In evaluating the cleanup alternatives at all Superfund sites, EPA uses a specific set of nine criteria (called the NCP Criteria) that ask the following questions about each alternative:

Threshold Criteria – must be met for an alternative to be eligible.

1. **Overall protection of human health and the environment.** Is it protective? How are risks eliminated, reduced, or controlled?
2. **Compliance with ARARs.** Does it meet environmental laws or provide grounds for a waiver?

All of our alternatives in the FS meet these requirements.

They are all protective

They all legal

NCP Balancing Criteria



Balancing Criteria – determines relative strengths and weaknesses among the criteria that meet threshold.

3. **Long-term effectiveness and permanence.** Does it provide reliable protection over time?
4. **Reduction of toxicity, mobility, or volume through treatment.** Does it use a treatment technology? This is preferred, if possible.
5. **Short-term effectiveness.** Will the remedy be implemented fast enough to address short-term risks, and will there be adverse effects (human health or environmental) during construction/implementation?
6. **Implementability.** How difficult will it be to implement (e.g. availability of materials or coordination of Federal, State, and local agencies)?
7. **Cost effectiveness.** What are the estimated capital and operation and maintenance costs in comparison to other, equally-protective alternatives?

We looked at treatment.

PCBs already immobilized in the waste,

off-site incineration – added cost without added protectiveness

Cost – EPA's position set out in the Federal Register is that potential tax earnings or property value cannot not be considered as a part of the cost evaluation criteria

That said, EPA believes that there should be productive reuse of superfund sites whenever possible. EPA seeks to facilitate it. We have made some efforts here, seen in those redevelopment posters. EPA is committed to facilitating additional reuse planning.

NCP Modifying Criteria

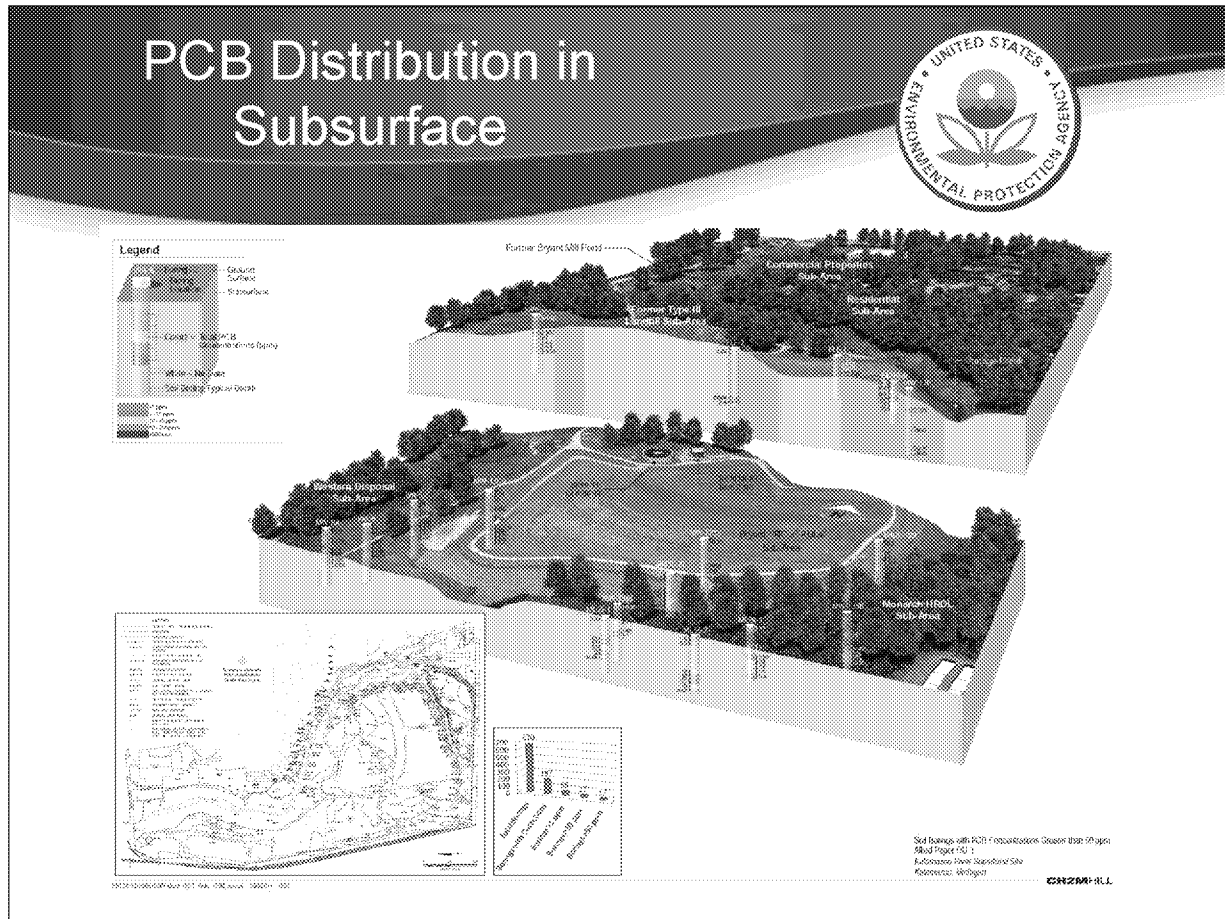


Modifying Criteria – implemented once all public comments are evaluated. They may prompt modifications to the preferred alternative to achieve the end result of a preferred alternative for cleanup in which EPA and the community can be confident.

8. **State acceptance.** Does the State agree with, oppose, or have no comment on it?
9. **Community acceptance.** Does the community support, have reservations about, or oppose it?

LEGEND

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- LAND ACQUISITION Thriving
- LAND ACQUISITION Excellence
- LAND ACQUISITION Perfection
- LAND ACQUISITION Harmony
- LAND ACQUISITION Balance
- LAND ACQUISITION Wholeness
- LAND ACQUISITION Oneness
- LAND ACQUISITION Unity
- LAND ACQUISITION Peace
- LAND ACQUISITION Love
- LAND ACQUISITION Joy
- LAND ACQUISITION Hope
- LAND ACQUISITION Faith
- LAND ACQUISITION Trust
- LAND ACQUISITION Respect
- LAND ACQUISITION Dignity
- LAND ACQUISITION Honor
- LAND ACQUISITION Glory
- LAND ACQUISITION Praise
- LAND ACQUISITION Worship
- LAND ACQUISITION Service
- LAND AC



Distribution of PCBs in soil

PCBs frozen in waste.

Immobilien.

If PCBs were mobile within the waste, we would see gradients

Further evidence that PCBs are not migrating to groundwater



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